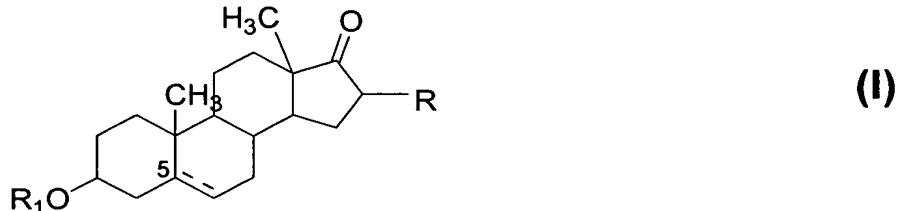


**WHAT IS CLAIMED IS:**

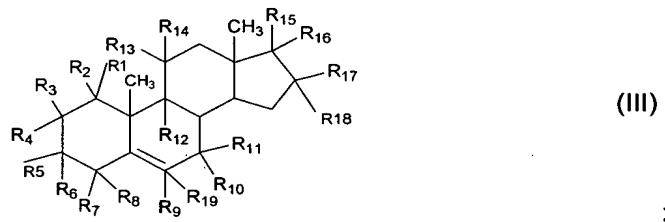
1. A pharmaceutical composition, comprising a pharmaceutically or veterinarilly acceptable carrier, a first active agent and a second active agent effective to treat asthma, chronic obstructive pulmonary disease, allergic rhinitis, or a respiratory or lung disease,

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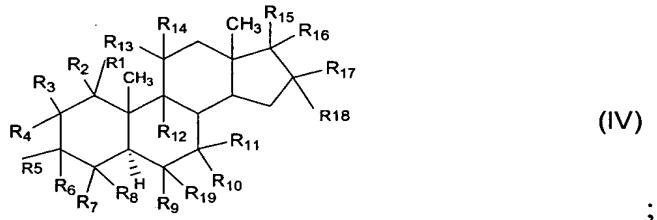
(a) the first active agent is a non-glucocorticoid steroid having the chemical formula



wherein the broken line represents a single or a double bond; R is hydrogen or a halogen; the H at position 5 is present in the alpha or beta configuration or the compound of chemical formula I comprises a racemic mixture of both configurations; and R<sup>1</sup> is hydrogen or a multivalent inorganic or organic dicarboxylic acid covalently bound to the compound; 10 a non-glucocorticoid steroid of the chemical formula



a non-glucocorticoid steroid of the chemical formula



15

wherein R1, R2, R3, R4, R5, R7, R8, R9, R10, R12, R13, R14 and R19 are independently H, OR, halogen, (C<sub>1</sub>-C<sub>10</sub>) alkyl or (C<sub>1</sub>-C<sub>10</sub>) alkoxy, R5 and R11 are independently OH, SH, H, halogen, pharmaceutically acceptable ester, pharmaceutically acceptable thioester, pharmaceutically acceptable ether, pharmaceutically acceptable thioether, pharmaceutically acceptable inorganic esters, pharmaceutically acceptable monosaccharide, disaccharide or oligosaccharide, spirooxirane, spirothirane, -OSO<sub>2</sub>R20, -OPOR20R21 or (C<sub>1</sub>-C<sub>10</sub>) alky, R5 and R6 taken together are =O, R10 and R11 taken together are =O; R15 is (1) H, halogen, (C<sub>1</sub>-C<sub>10</sub>) alkyl, or (C<sub>1</sub>-C<sub>10</sub>) alkoxy when R16 is -C(O)OR22, (2) H, halogen, OH or (C<sub>1</sub>-C<sub>10</sub>) alkyl when R16 is halogen, OH or (C<sub>1</sub>-C<sub>10</sub>) alkyl, (3) H, halogen, (C<sub>1</sub>-C<sub>10</sub>) alkyl, (C<sub>1</sub>-C<sub>10</sub>) alkenyl, (C<sub>1</sub>-C<sub>10</sub>)

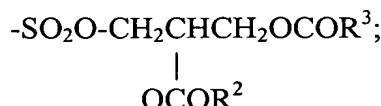
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spirooxirane, spirothirane, -OSO<sub>2</sub>R20, -OPOR20R21 or (C<sub>1</sub>-C<sub>10</sub>) alky, R5 and R6 taken together are =O, R10 and R11 taken together are =O; R15 is (1) H, halogen, (C<sub>1</sub>-C<sub>10</sub>) alkyl, or (C<sub>1</sub>-C<sub>10</sub>) alkoxy when R16 is -C(O)OR22, (2) H, halogen, OH or (C<sub>1</sub>-C<sub>10</sub>) alkyl when R16 is halogen, OH or (C<sub>1</sub>-C<sub>10</sub>) alkyl, (3) H, halogen, (C<sub>1</sub>-C<sub>10</sub>) alkyl, (C<sub>1</sub>-C<sub>10</sub>) alkenyl, (C<sub>1</sub>-C<sub>10</sub>)

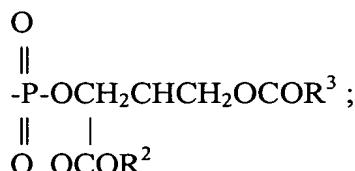
alkynyl, formyl, (C<sub>1</sub>-C<sub>10</sub>) alkanoyl or epoxy when R16 is OH, (4) OR, SH, H, halogen, pharmaceutically acceptable ester, pharmaceutically acceptable thioester, pharmaceutically acceptable ether, pharmaceutically acceptable thioether, pharmaceutically acceptable inorganic esters, pharmaceutically acceptable monosaccharide, disaccharide or oligosaccharide, 5 spirooxirane, spirothirane, -OSO<sub>2</sub>R20 or -OPOR20R21 when R16 is H, or R15 and R16 taken together are =O; R17 and R18 are independently (1) H, -OH, halogen, (C<sub>1</sub>-C<sub>10</sub>) alkyl or -(C<sub>1</sub>-C<sub>10</sub>) alkoxy when R6 is H OR, halogen. (C<sub>1</sub>-C<sub>10</sub>) alkyl or -C(O)OR22, (2) H, (C<sub>1</sub>-C<sub>10</sub>) alkyl).amino, ((C<sub>1</sub>-C<sub>10</sub>) alkyl)n amino-(C<sub>1</sub>-C<sub>10</sub>) alkyl, (C<sub>1</sub>-C<sub>10</sub>) alkoxy, hydroxy - (C<sub>1</sub>-C<sub>10</sub>) alkyl, (C<sub>1</sub>-C<sub>10</sub>) alkoxy - (C<sub>1</sub>-C<sub>10</sub>) alkyl, (halogen)m (C<sub>1</sub>-C<sub>10</sub>) alkyl, (C<sub>1</sub>-C<sub>10</sub>) alkanoyl, formyl, (C<sub>1</sub>-C<sub>10</sub>) 10 carbalkoxy or (C<sub>1</sub>-C<sub>10</sub>) alkanoyloxy when R15 and R16 taken together are =O, (3) R17 and R18 taken together are =O; (4) R17 or R18 taken together with the carbon to which they are attached form a 3-6 member ring containing 0 or 1 oxygen atom; or (5) R15 and R17 taken together with the carbons to which they are attached form an epoxide ring; R20 and R21 are independently OH, pharmaceutically acceptable ester or pharmaceutically acceptable ether; R22 is H, 15 (halogen)m (C<sub>1</sub>-C<sub>10</sub>) alkyl or (C<sub>1</sub>-C<sub>10</sub>) alkyl; n is 0, 1 or 2; and m is 1, 2 or 3; or pharmaceutically or veterinarilly acceptable salts thereof; and

(b) the second active agent is a glucocorticosteroid.

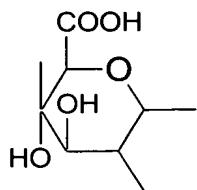
2. The pharmaceutical composition of claim 1, wherein the first active agent is a 20 non-glucocorticoid steroid having the chemical formula (I), wherein said multivalent organic dicarboxylic acid is SO<sub>2</sub>OM, phosphate or carbonate, wherein M comprises a counterion, wherein said counterion is H, sodium, potassium, magnesium, aluminum, zinc, calcium, lithium, ammonium, amine, arginine, lysine, histidine, triethylamine, ethanolamine, choline, triethanolamine, procaine, benzathine, tromethamine, pyrrolidine, piperazine, diethylamine, 25 sulfatide



or phosphatide



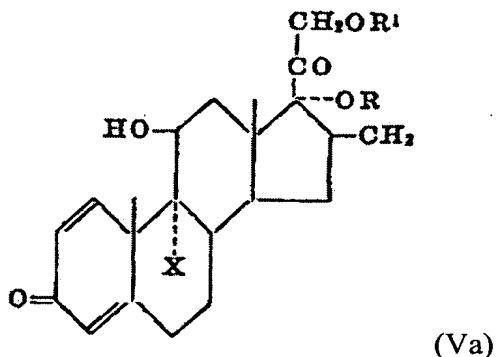
wherein R<sup>2</sup> and R<sup>3</sup>, which are the same or different, and are straight or branched (C<sub>1</sub>-C<sub>14</sub>) alkyl or glucuronide



5        3.        The pharmaceutical composition of claim 2, wherein said first active agent is dehydroepiandrosterone.

10        4.        The pharmaceutical composition of claim 2, wherein said first active agent is dehydroepiandrosterone-sulfate.

15        5.        The pharmaceutical composition of claim 1, wherein said glucocorticosteroid is a compound having the formula:

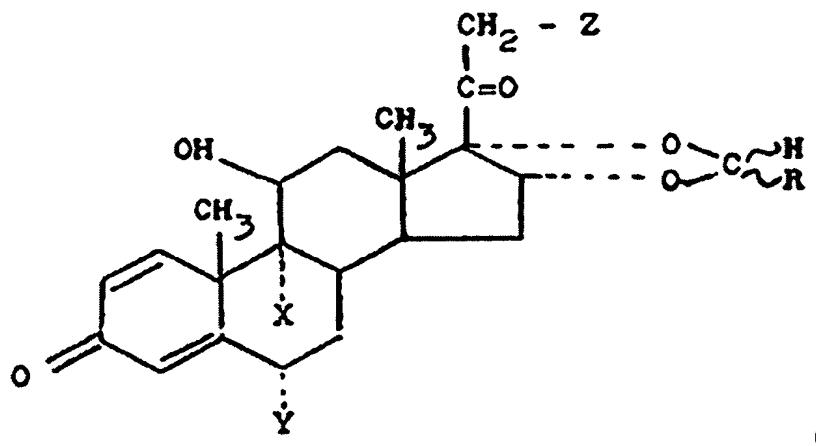


(Va)

where X is halogen, R is a C<sub>2</sub>-C<sub>6</sub> alkanoyl group and R1 is a grouping selected from the group consisting of hydrogen and C<sub>1</sub>-C<sub>7</sub> alkanoyl groups, wherein the total number of carbon atoms in the groups R and R1 being from 3 to 9.

20        6.        The pharmaceutical composition of claim 5, wherein said glucocorticosteroid is beclomethasone dipropionate.

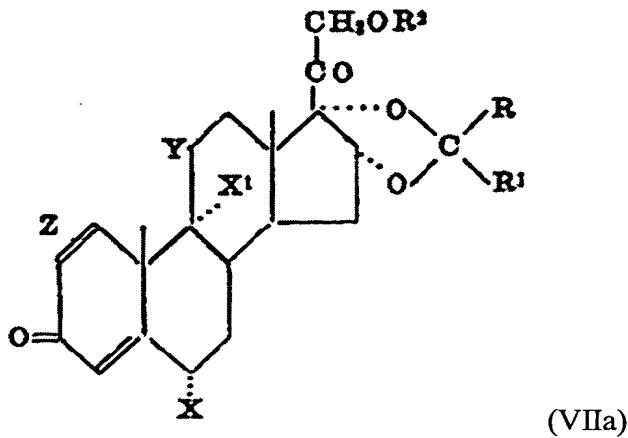
7.        The pharmaceutical composition of claim 1, wherein said glucocorticosteroid is a compound having the formula:



wherein X and Y are independently selected from hydrogen and fluorine, wherein X is selected from hydrogen and X being fluorine when Y is fluorine, Z is selected from hydroxyl and esterified hydroxyl and containing 12 or fewer carbon atoms in the esterifying group, R is selected from straight and branched hydrocarbon chains having 2-10 carbon atoms.

8. The pharmaceutical composition of claim 1, wherein said glucocorticosteroid is budesonide.

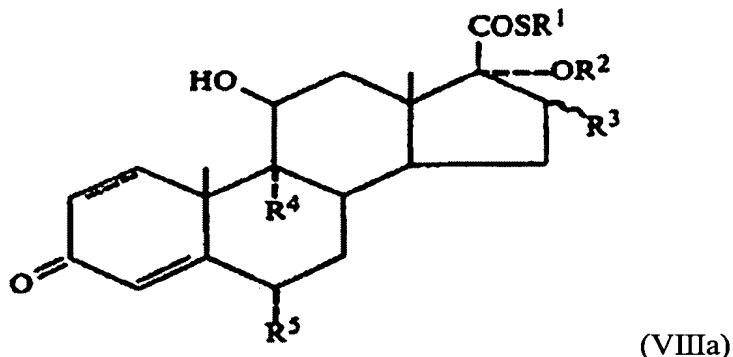
9. The pharmaceutical composition of claim 1, wherein said glucocorticosteroid is a compound having the formula:



wherein R and R1 is hydrogen or the residue of a hydrocarbon of up to 8 carbon atoms of straight, branched, cyclic or mixed aliphatic-cyclic chain, saturated or unsaturated, wherein X represents fluorine or chlorine, wherein X1 represents hydrogen, fluorine or chlorine, wherein Y represents =O or  $\beta$ -OH, wherein Z represents a double bond between C-1 and C-2, wherein R2 represents hydrogen or a hydrocarbon carboxylic acyl group of up to 12 carbon atoms.

10. The pharmaceutical composition of claim 9, wherein said glucocorticosteroid is flunisolide.

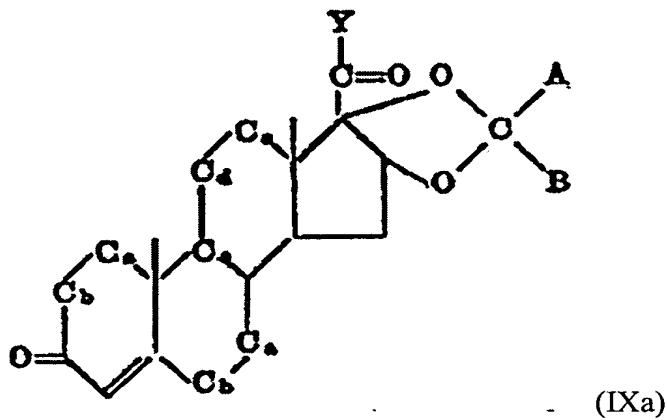
5 11. The pharmaceutical composition of claim 1, wherein said glucocorticosteroid is a compound having the formula:



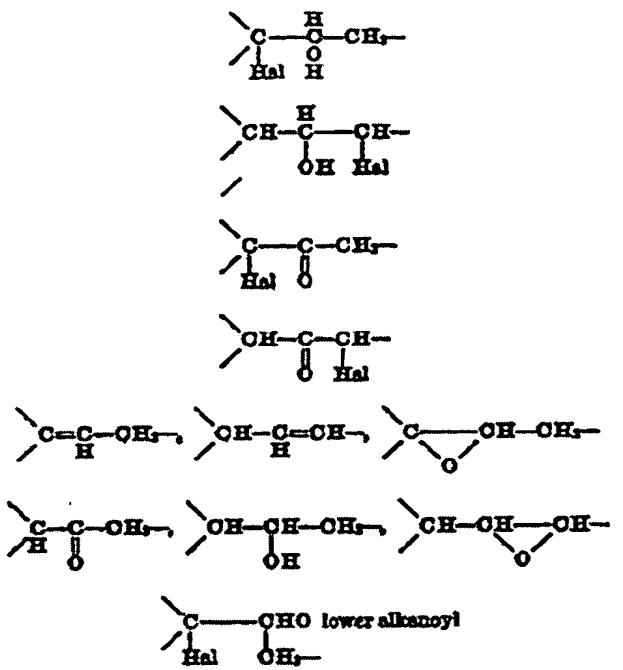
10 wherein R1 represents a fluoro-, chloro- or bromo-methyl group or a 2'-fluoroethyl group, R2 represents a group COR6 where R6 is a C<sub>1</sub>-C<sub>3</sub> alkyl group or OR2 and R3 together form a 16 $\alpha$ , 17 $\alpha$ -isopropylidenedioxy group; R3 represents a hydrogen atom, a methyl group (which may be in either the  $\alpha$ - or  $\beta$ - configuration) or a methylene group; R4 represents a hydrogen, chlorine or fluorine atom; R5 represents a hydrogen or fluorine atom and the symbol  $\text{---}$  represents a single or double bond.

15 12. The pharmaceutical composition of claim 11, wherein said glucocorticosteroid is a fluticasone propionate.

13. The pharmaceutical composition of claim 1, wherein said glucocorticosteroid is a compound having the formula:



20 wherein >C<sub>c</sub>-C<sub>d</sub>-C<sub>e</sub>- is a trivalent substituted three carbon chain of the group consisting of

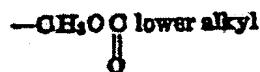


A and B are hydrogen or lower alkyl radicals; C<sub>a</sub>-C<sub>b</sub> is a divalent radical of the group consisting of -CH<sub>2</sub>CH<sub>2</sub>-; -CH=CH-;



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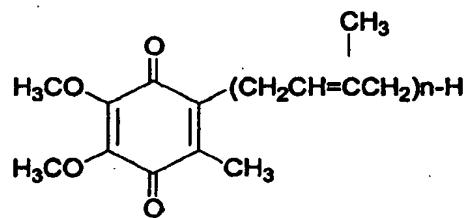
and Y is a monovalent radical of the group consisting of -CH<sub>3</sub>; -CH<sub>2</sub>OH;



14. The pharmaceutical composition of claim 13, wherein said glucocorticosteroid is triamcinolone acetonide.

10

15. The pharmaceutical composition of claim 1, further comprising a ubiquinone or pharmaceutically or veterinarianily acceptable salt thereof, wherein the ubiquinone has the chemical formula



15

wherein n is 1 to 12.

16. The pharmaceutical composition of claim 1, wherein the pharmaceutical composition comprises particles of inhalable or respirable size.

17. The pharmaceutical composition of claim 16, wherein the particles are about 0.01  
5  $\mu\text{m}$  to about 10  $\mu\text{m}$  in size.

18. The pharmaceutical composition of claim 16, wherein the particles are about 10  
10  $\mu\text{m}$  to about 100  $\mu\text{m}$  in size.

19. A kit comprising a delivery device and the pharmaceutical composition of claim  
10 1.

20. The kit of claim 19, wherein the delivery device is an aerosol generator or spray  
15 generator.

21. The kit of claim 20, wherein the aerosol generator comprises an inhaler.

22. The kit of claim 21, wherein the inhaler delivers individual pre-metered doses of  
20 the formulation

23. The kit of claim 22, wherein the inhaler comprises a nebulizer or insufflator.

24. A method for reducing the probability of or treating asthma in a subject,  
comprising administering to a subject in need of such treatment a prophylactically or  
25 therapeutically effective amount of the pharmaceutical composition of claim 1.

25. A method for reducing the probability of or treating of chronic obstructive  
30 pulmonary disease in a subject, comprising administering to a subject in need of such treatment a  
prophylactically or therapeutically effective amount of the pharmaceutical composition of claim  
1.

26. A method for treatment of respiratory, lung or malignant disorder or condition, or  
for reducing levels of, or sensitivity to, adenosine or adenosine receptors in a subject, comprising

administering to a subject in need of such treatment a prophylactically or therapeutically effective amount of the pharmaceutical composition of claim 1.

27. The method of claim 26, wherein the disorder or condition comprises asthma,  
5 chronic obstructive pulmonary disease (COPD), allergic rhinitis, cystic fibrosis (CF), dyspnea, emphysema, wheezing, pulmonary hypertension, pulmonary fibrosis, hyper-responsive airways, increased adenosine or adenosine receptor levels, adenosine hyper-sensitivity, infectious diseases, pulmonary bronchoconstriction, respiratory tract inflammation or allergies, lung surfactant or ubiquinone depletion, chronic bronchitis, bronchoconstriction, difficult breathing,  
10 impeded or obstructed lung airways, adenosine test for cardiac function, pulmonary vasoconstriction, impeded respiration, Acute Respiratory Distress Syndrome (ARDS), administration of adenosine or adenosine level increasing drugs, infantile Respiratory Distress Syndrome (infantile RDS), pain, allergic rhinitis, cancer, or chronic bronchitis.